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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/421,434	10/19/1999	TAKAAKI ASADA	36856.00226	4142

7590

12/22/2003

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EXAMINER
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TUGBANG, ANTHONY D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 12/22/2003

24

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/421,434

Applicant(s)

ASADA, TAKAAKI

Examiner

A. Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/22/03 has been entered.

### ***Specification***

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification fails to provide proper antecedent basis for the claim limitations of "completing manufacturing of the piezoelectric transformer apparatus", as filed originally in Claim 14.

In the applicant's remarks filed 4/2/03 (Paper No. 19, page 7), the applicant asserts that support for the above feature is found in the paragraph bridging pages 12-13. However, the examiner notes that neither the bridging paragraph, nor anywhere else in the specification, is there any recitation of "completing manufacturing of the piezoelectric transformer apparatus".

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

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pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1 and 3-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In Claim 1, the recitation of “before the piezoelectric transformer apparatus is assembled into an electronic device” (last 2 lines of Claim 1), as this is applied to the step of completing the manufacture of the piezoelectric transformer apparatus, is new matter. The specification and drawings, as originally filed, do not provide support for completing the manufacture of the piezoelectric transformer apparatus before it is assembled into an electronic device. The specification does not even define what is meant by an “electronic device”.

In the applicants’ arguments filed 4/2/03 (Paper No. 19, page 7), the applicant asserts that support for the above feature is found in the paragraph bridging pages 12-13. However, the examiner notes that neither the bridging paragraph, nor anywhere else in the specification, disclose any features of completing the manufacture of the piezoelectric transformer apparatus *before it is assembled into an electronic device*. It is noted that original Claim 14 does recite “completing manufacturing of the piezoelectric transformer apparatus”. However, neither this recitation alone, nor the specification as a whole, can in anyway imply that this completion is accomplished before any assembly into an electronic component. What electronic component is the applicant referring to?

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3 and 10-17, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Massa 4,190,937.

Regarding Claim(s) 1 and 14-16, Massa discloses a method of manufacturing and screening a piezoelectric transformer apparatus comprising: beginning manufacturing of the piezoelectric transformer apparatus by providing piezoelectric members with actuators and generators 2 (see col. 2, lines 50+); connecting a load impedance to the generator (see Fig. 1); testing by applying a stress signal of voltage and current to the actuator to vibrate the piezoelectric transformer and identifying whether the transformer apparatus has any mechanical latent defects of performance characteristics (see col. 3, lines 5+); and completing the manufacture of the piezoelectric transformer apparatus after the step of identifying by grouping the transformer apparatus into several different latent defect groups, i.e. different performance characteristics. The completing step is performed before the transformer apparatus is assembled into other electronic devices, such as transmitting transducers and receiving transducers.

Regarding Claim(s) 3 and 17, Massa further teaches that the vibrational level applied by the stress signals of voltage and current, is used in vibrational levels of a fatigue limit during actual use or operation of the piezoelectric transformer apparatus where the measurement of the

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above vibrational levels involve the measurement of the various motional characteristics (see col. 4, lines 3+).

Regarding Claim(s) 10-11, the piezoelectric transformer apparatus of Massa is inherently cooled by normal atmospheric conditions and is considered to be a Rosen-type transformer to the extent that the piezoelectric material is ceramic.

Regarding Claim(s) 12-13, the piezoelectric transformer apparatus of Massa shows both a single plate and multiple stacked plates as they are placed in a cartridge 1 (shown in Figs. 1 and 2).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4-9 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Massa in view of Kawamura et al.

Regarding Claim(s) 6 and 20, Massa discloses substantially all of the limitations of the claimed manufacturing method except that the load impedance includes a resistance element.

Kawamura shows a piezoelectric transformer apparatus including, or being connected to, a load impedance with a resistance element of an electric-*resistance* strain gage (shown in Fig. 4), for the purpose of measuring motional characteristics of frequency and strain (p. 564)

Regarding Claim(s) 7 and 8, Kawamura further teaches that the stress signal is a sinusoidal continuous or burst wave (see discussion on p. 561 and Fig. 7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Massa by including the resistance element of Kawamura, to advantageously enhance the measurement of motional characteristics of frequency and strain of the piezoelectric transformer apparatus.

With respect to Claims 4, 5, 9, 18 and 19, it would have been an obvious matter of *engineering design choice* to choose any desired relative values of load impedance or percentage of duty ratio of the piezoelectric transformer. Applicant has not disclosed that the load impedance being not less than 10 X the output impedance and duty ratio of burst wave being not more than 10, are claimed features which solve any stated problem or are for any particular purpose, and it appears that the invention would perform equally well with the relative values of load impedance and percentage of duty ratio taught by either Kawamura et al or Massa. Furthermore, the relative values of load impedance and percentage of duty ratio as recited in the claims, do not provide any manipulative difference when compared to the process steps of the above prior art.

#### ***Response to Arguments***

9. Applicant's arguments filed 4/2/03 (Paper No. 19) regarding the applied art in the Final Rejection (Paper No. 17) of Claims 1 and 3-20 have been fully considered, but are now moot in view of the new ground(s) of rejection set forth above.

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***Conclusion***

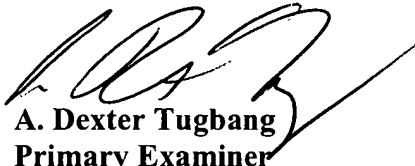
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 703-308-7599.

The examiner can normally be reached on Monday - Friday 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9302.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.

  
A. Dexter Tugbang  
Primary Examiner  
Art Unit 3729

December 15, 2003